

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A process for forming an integrated circuit structure having at least one layer of low k dielectric material therein and a layer, formed from said low k dielectric material, suitable for use as an etch stop and/or an etch mask which consists essentially of:
 - a) forming a first layer of low k dielectric material over a previously formed integrated circuit structure; and
 - b) then, prior to any exposure of said first layer of low k dielectric material to etchants, treating the upper surface of said first layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a first layer of densified dielectric material over the remainder of the underlying first layer of low k dielectric material; whereby said first layer of densified dielectric material is capable of serving as a etch stop and/or an etch mask for subsequent etching of said underlying first layer of low k dielectric material.

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Reply to Office Action of July 3, 2003

Docket No. 00-654/RCE

2. (Previously Presented) The process of claim 1 including the further steps of:
 - a) forming a first photoresist mask with a first pattern of openings therein over said first layer of densified dielectric material; and
 - b) patterning said first layer of densified dielectric material through said first openings in said first photoresist mask to form a first etch mask layer of densified dielectric material having a pattern of openings in said first etch mask layer of densified dielectric material suitable for use in etching a corresponding pattern of openings in said underlying first layer of low k dielectric material.
3. (Previously Presented) The process of claim 22 including the further step of etching said pattern of openings in said first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material thereon.

4-21 (Canceled).

22. (Previously Presented) The process of claim 2 including the further step of then removing said first photoresist mask from said first etch mask layer of densified dielectric material before etching said first layer of low k dielectric material.

23. (New) A process for forming an integrated circuit structure having at least one layer of low k dielectric material therein and a layer, formed from said low k dielectric material, suitable for use as an etch mask which consists essentially of:

- a) forming a first layer of low k dielectric material over a previously formed integrated circuit structure;
- b) then, prior to any exposure of said first layer of low k dielectric material to etchants, treating the upper surface of said first layer of low k dielectric material with a plasma formed from a non-oxidizing gas to form a first layer of densified dielectric material over the remainder of the underlying first layer of low k dielectric material;
- c) forming a photoresist mask over said first layer of densified dielectric material;
- d) patterning said first layer of densified dielectric material through said photoresist mask to form a first etch mask layer of densified dielectric material having a pattern of openings therein suitable for use in etching a corresponding pattern of openings in said underlying first layer of low k dielectric material; and
- e) then removing said photoresist mask before etching any openings in said underlying first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material;

whereby said first layer of densified dielectric material serves as an etch mask for subsequent etching of said underlying first layer of low k dielectric material, and said photoresist mask is removed prior to formation of openings in said low k dielectric layer to prevent exposure of surfaces of said openings in said low k dielectric material to materials used to remove said photoresist mask.

24. (New) The process of claim 23 including the further step of etching said pattern of openings in said first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material thereon.

25. (New) The process of claim 24 wherein said pattern of openings etched in said first layer of low k dielectric material through said first etch mask layer comprises a pattern of trenches extending through said first layer of low k dielectric material down to said previously formed integrated circuit structure.

26. (New) The process of claim 24 wherein said pattern of openings etched in said first layer of low k dielectric material comprises a pattern of vias extending through said first layer of low k dielectric material down to said previously formed integrated circuit structure.

27. (New) A process for forming an integrated circuit structure having at least one layer of low k material therein and a layer, formed from a low k dielectric layer, suitable for use as an etch stop and/or an etch mask which consists essentially of:

- a) forming a first layer of low k dielectric material over previously formed portions of said integrated circuit structure; and
- b) treating the upper surface of said first layer of low k dielectric material with a plasma formed from a reducing gas to form a first layer of densified dielectric material over the remainder of the underlying first layer of low k dielectric material whereby said first layer of densified dielectric material is capable of serving as an etch mask for etching of said underlying first layer of low k dielectric material;
- c) forming a photoresist mask over said first layer of densified dielectric material;
- d) patterning said first layer of densified dielectric material through said photoresist mask to form a first etch mask layer of densified dielectric material having a pattern of openings therein suitable for use in etching a corresponding pattern of openings in said underlying first layer of low k dielectric material; and
- e) then removing said photoresist mask before etching any openings in said underlying first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material;

whereby said first layer of densified dielectric material serves as an etch mask for subsequent etching of said underlying first layer of low k dielectric material.

28. (New) The process of claim 27 including the further step of etching a pattern of openings in said first layer of low k dielectric material through said pattern of openings in said first etch mask layer of densified dielectric material.